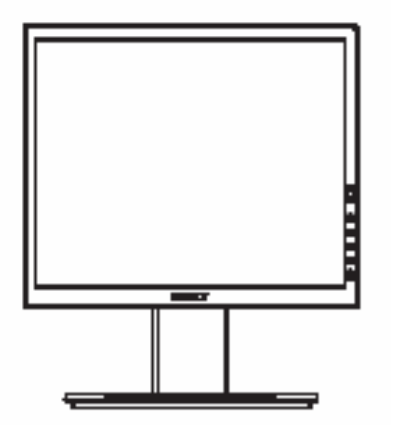
SDM-S76F: AEP

SDM-S96F: AEP

Service Manual



TFT LCD COLOR COMPUTER DISPLAY

SONY

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PRECAUTION

WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in LCD monitor that are important for safety.
  These parts are marked on the schematic diagram and the replacement parts list.
  It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.

- Do not modify original design without obtaining written permission from manufacturer or you will void the original parts and labor guarantee.

TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- Must mount the module using mounting holes arranged in four corners.

- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.

- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.

- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).

- Make certain that treatment person's bodies are grounded through wrist band.

- Do not leave the module in high temperature and in areas of high humidity for a long time.

- The module not is exposed to the direct sunlight.

- Avoid contact with water as it may a short circuit within the module.

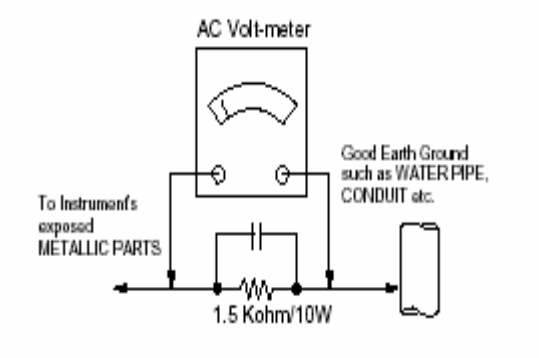
- If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

⚠ CAUTION
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

⚠ WARNING
BE CAREFUL ELECTRIC SHOCK !

- If you want to replace with the new backlight (CCFL) or inverter circuit, must disconnect the AC adapter because high voltage appears at inverter circuit about 650Vrms.

- Handle with care wires or connectors of the inverter circuit. If the wires are pressed cause short and may burn or take fire.



Leakage Current Hot Check Circuit

SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT Color LCD Module
Active Display Area	: 17 inch - **SDM-S76F**
	: 19 inch - **SDM-S96F**
Pixel Pitch	: 0.264 (H) x 0.264 (V) -**SDM-S76F**
	: 0.294 (H) x 0.294 (V) **-SDM-S96F**
Size	: 358.5(W) x 296.5(H) x 17.5(D) **- SDM-S76F**
	: 396(W) x 324(H) x 17.5(D) **- SDM-S96F**
Color Depth	: 16.2M colors - **SDM-S76F**
	: 16.2M colors **- SDM-E96A/D**
Electrical Interface	: LVDS
Surface Treatment	: Anti Glare, Hard-coating (3H)
Operating Mode	: Normally White
Backlight Unit	: Top/Bottom edge side 4-CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio $\geq$ 10

SDM-S76F

Left : 70°(Typ) Right : 70°(Typ)
Top : 70°(Typ) Bottom : 60°(Typ)

SDM-S96F

Left : 70°(Typ) Right : 70°(Typ)
Top : 75°(Typ) Bottom : 60°(Typ)

2-2. Luminance :

300(Typ) **- SDM-S76F**
300(Typ) **- SDM-S96F**

2-3. Contrast Ratio :

500:1 (Typ) **- SDM-S76F**
700:1 (Typ) **- SDM-S96F**

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal

Type : Separate Sync, Composite Sync, SOG (Sync On Green), Digital

3-2. Video Input Signal

1) Type: R, G, B Analog
2) Voltage Level: 0~0.71 V
   a) Color 0, 0: 0 Vp-p
   b) Color 7, 0: 0.467 Vp-p
   c) Color 15, 0: 0.714 Vp-p
3) Input Impedance : 75Ω

3-3. Operating Frequency

	Analog	Digital
Horizontal:	28 ~ 80kHz	28 ~ 64kHz
Vertical:	56 ~ 75Hz	60Hz
Dot Clock:	$\leq$ 135MHz	$\leq$ 108MHz

4. Max. Resolution

Analog : 1280 x 1024 / 75Hz
Digital : 1280 x 1024 / 60Hz

5. POWER SUPPLY

5-1. Power: AC 100~240V, 50/60Hz,

5-2. Power Consumption

SDM-S76F

Normal operation	< 38W
Active off (deep sleep)	< 1W
Power off	< 1W

SDM-S96F

Normal operation	< 44W
Active off (deep sleep)	< 1W
Power off	< 1W

6. ENVIRONMENT

6-1. Operating Temperature:
5°C~35°C (41°F~95°F)

6-2. Relative Humidity:
10%~80% (Non-condensing)

7. DIMENSIONS

SDM-S76F
Width: 369 mm (14.5")
Depth: 253 mm (10.0")
Height: 393.5-503.5 mm (15.5”-19.8")

SDM-S96F
Width: 414 mm (16.3")
Depth: 277.5 mm (10.9")
Height: 409.5-519.5 mm (16.1-20.5”)

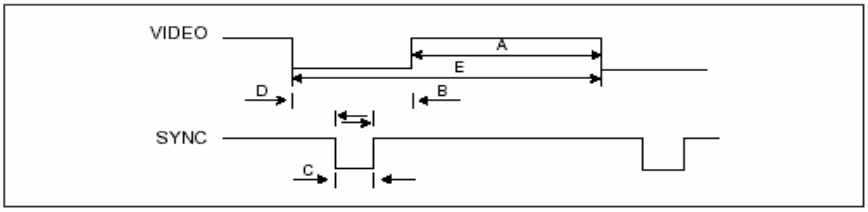
8. WEIGHT

SDM-S76F
Net. Weight: 7 kg (15.4 lbs)
Gross Weight: 9 kg (19.8 lbs)

SDM-S96F
Net. Weight : 7.5kg (16.5 lbs)
Gross Weight: 10kg (22.0 lbs)

TIMING CHART

TIMING CHART

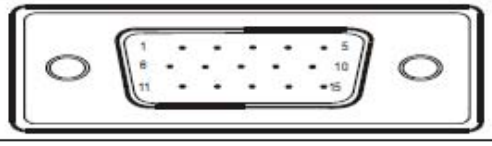


<< Dot Clock (MHz), Horizontal Frequency (kHz), Vertical Frequency (Hz), Horizontal etc... (µs), Vertical etc... (ms) >>

Mode	H/V Sort	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Blanking time (B)	Sync Duration (D)	Back Porch (F)	Front Porch (C)	Resolution
1	H	-	28.350	31.50 KHz	900	720	180	108	54	18	720 x 400
	V	+		70.156 Hz	449	400	49	3	34	12	
2	H	-	25.175	31.469KHz	800	640	160	96	48	16	640 x 480
	V	-		59.940 Hz	525	480	45	2	33	10	
3	H	-	30.240	35.00 KHz	864	640	224	64	96	64	640 x 480
	V	-		66.667 Hz	525	480	45	3	39	3	
4	H	-	31.500	37.50KHz	840	640	200	64	120	16	640 x 480
	V	-		75.0 Hz	500	480	20	3	16	1	
5	H	-	31.505	35.162 KHz	896	720	176	40	102	34	720 x 480
	V	-		59.901 Hz	587	480	107	2	93	12	
6	H	+-	36.0	35.156 KHz	1024	800	224	72	128	24	800 x 600
	V	+		56.25 Hz	625	600	25	2	22	1	
7	H	+	40.0	37.879 KHz	1056	800	256	128	88	40	800 x 600
	V	+		60.317 Hz	628	600	28	4	23	1	
8	H	+	50.0	48.077 KHz	1040	800	240	120	64	56	800 x 600
	V	+		72.188 Hz	666	600	66	6	23	37	
9	H	+	49.5	46.875 KHz	1056	800	256	80	160	16	800 x 600
	V	+		75.0 Hz	625	600	25	3	21	1	
10	H	-	57.285	49.727 KHz	1152	832	320	64	224	32	832 x 624
	V	-		74.553 Hz	667	624	43	3	37	3	(MAC16")
11	H	-	65	48.363 KHz	1344	1024	320	136	160	24	1024 x 768
	V	-		60.004 Hz	806	768	38	6	29	3	
12	H	-	75	56.476 KHz	1328	1024	304	136	144	24	1024 x 768
	V	-		70.069 Hz	806	768	38	6	29	3	
13	H	+	78.75	60.023 KHz	1312	1024	288	96	176	16	1024 x 768
	V	+		75.029 Hz	800	768	32	3	28	1	
14	H	-	80.00	60.241 KHz	1328	1024	304	96	176	32	1024 x 768
	V	-		74.927 Hz	804	768	36	3	30	3	(MAC 19)
15	H	+	108	67.500 KHz	1600	1152	448	128	256	64	1152 x 864
	V	+		75.000 Hz	900	864	36	3	32	1	
16	H	-	100	68.681 KHz	1456	1152	304	128	144	32	1152 x 870
	V	-		75.062 Hz	915	870	45	3	39	3	(MAC 21)
17	H	-	92.940	61.795 KHz	1504	1152	352	128	194	30	1152 x 900
	V	-		65.950 Hz	937	900	37	4	31	2	
18	H	-	105.590	71.732 KHz	1472	1152	320	96	208	16	1152 x 900
	V	-		76.068 Hz	943	900	43	8	33	2	
19	H	+	46.200	31.216 KHz	1480	1170	310	129	144	37	1170 x 584
	V	+		50.026 Hz	624	584	40	3	34	3	
20	H	+	108.00	60.000 KHz	1800	1280	520	112	312	96	1280 x 960
	V	+		60.000 Hz	1000	960	40	3	36	1	
21	H	+	108.00	63.981 KHz	1688	1280	408	112	248	48	1280 x1024
	V	+		60.020 Hz	1066	1024	42	3	38	1	
22	H	+	135	79.976 KHz	1688	1280	408	144	248	16	1280 x 1024
	V	+		75.025 Hz	1066	1024	42	3	38	1	

SIGNAL CONNECTOR PIN

Analog connectors

NO.	Description	NO.	Description
1.	Red Video	9.	+5V
2.	Green Video	10.	Detect Cable
3.	Blue Video	11.	NC
4.	GND	12.	SDA
5.	Sensor for PC	13.	Horizontal Sync
6.	Red GND	14.	Vertical Sync
7.	Green GND	15.	SCL
8.	Blue GND		
VGA Connector layout			
			

Digital connectors

NO.	Description	NO.	Description
1.	TMDS Data 2-	13.	No Connect
2.	TMDS Data 2+	14.	+5V
3.	TMDS Data 2 Shield	15.	Sense of connection PC
4.	No Connect	16.	Hot Plug Detect
5.	No Connect	17.	TMDS Data 0-
6.	DDC Clock	18.	TMDS Data 0+
7.	DDC Data	19.	TMDS Data 0 Shield
8.	No Connect	20.	No Connect
9.	TMDS Data1-	21.	No Connect
10.	TMDS Data 1+	22.	TMDS Clock Shield
11.	TMDS Data 1 Shield	23.	TMDS Clock +
12.	No Connect	24.	TMDS Clock -
VGA Connector layout			

EDID DATA for S76F

EDID data for SDM-S76F (Analog)

No.	Data		No.	Data		No.	Data		No.	Data	
0	00h	<Header>	32	*5	(Blue)Y	64	13h		96	44h	D
1	FFh		33	*5	(White)X	65	00h		97	4Dh	M
2	FFh		34	*5	(White)Y	66	52h		98	2Dh	-
3	FFh		35	ADh	<Established Timings>	67	0Eh		99	53h	S
4	FFh		36	CFh		68	11h		100	37h	7
5	FFh		37	00h		69	00h		101	36h	6
6	FFh		38	81h	<Standard Timings>	70	00h		102	44h	D
7	00h		39	80h	#1:1280*1024/60Hz	71	1Eh		103	5Fh	_
8	4Dh	< Manufacturer name >	40	81h		72	00h	D Timing #2	104	46h	F
9	D9h	SNY	41	40h	#2:1280*960/60Hz	73	00h	<Range>	105	0Ah	(EOL)
10	00h	< Product code >	42	01h		74	00h		106	20h	
11	C9h	(00C9) --> C900	43	01h	#3:None	75	FDh		107	20h	
12	01h	(Un-used : Serial)	44	01h		76	00h		108	00h	D Timing #4
13	01h	"	45	01h	#4:None	77	38h	fV min. 56 [Hz]	109	00h	<Serial Number>
14	01h	"	46	01h		78	4Bh	fV max. 75 [Hz]	110	00h	<Example>
15	01h	"	47	01h	#5:None	79	1Ch	fH min. 28 [kHz]	111	FFh	
16	*1	<Week>	48	01h		80	51h	fH max. 81 [kHz]	112	00h	
17	*2	<Year>	49	01h	#6:None	81	0Eh	Max. p_clk 140 [MHz]	113	*3	
18	01h	<EDID S_Version>	50	01h		82	00h		114	*3	
19	03h	<EDID Revision>	51	01h	#7:None	83	0Ah		115	*3	
20	0Eh	<Video Input siganl>	52	01h		84	20h		116	*3	
21	22h	<Max.H. Image Size> 338mm	53	01h	#8:None	85	20h		117	*3	
22	1Bh	<Max.V. Image Size> 270mm	54	30h	D Timing #1	86	20h		118	*3	
23	78h	<Gamma>	55	2Ah	<Signal Timing>	87	20h		119	*3	
24	EAh	<DPMS etc.>	56	00h	(VESA1280x1024@60)	88	20h		120	0Ah	(EOL)
25	*5	<Color>	57	98h		89	20h		121	20h	
26	*5		58	51h		90	00h	D Timing #3	122	20h	
27	*5	(RED)X	59	00h		91	00h	<Model Name 1>	123	20h	
28	*5	(RED)Y	60	2Ah		92	00h	SDM-S76D_F	124	20h	
29	*5	(Green)X	61	40h		93	FCh		125	20h	
30	*5	(Green)Y	62	30h		94	00h		126	00h	
31	*5	(Blue)X	63	70h		95	53h	S	127	*4	<Check Sum>

EDID data for SDM-S76F (Digital)

No.	Data		No.	Data		No.	Data		No.	Data	
0	00h	<Header>	32	*5	(Blue)Y	64	13h		96	44h	D
1	FFh		33	*5	(White)X	65	00h		97	4Dh	M
2	FFh		34	*5	(White)Y	66	52h		98	2Dh	-
3	FFh		35	A1h	<Established Timings>	67	0Eh		99	53h	S
4	FFh		36	08h		68	11h		100	37h	7
5	FFh		37	00h		69	00h		101	36h	6
6	FFh		38	81h	<Standard Timings>	70	00h		102	44h	D
7	00h		39	80h	#1:1280*1024/60Hz	71	1Eh		103	5Fh	_
8	4Dh	< Manufacturer name >	40	81h		72	00h	D Timing #2	104	46h	F
9	D9h	SNY	41	40h	#2:1280*960/60Hz	73	00h	<Range>	105	0Ah	(EOL)
10	00h	< Product code >	42	01h		74	00h		106	20h	
11	CAh	(00CA) --> CA00	43	01h	#3:None	75	FDh		107	20h	
12	01h	(Un-used : Serial)	44	01h		76	00h		108	00h	D Timing #4
13	01h	"	45	01h	#4:None	77	39h	fV min. 57 [Hz]	109	00h	<Serial Number>
14	01h	"	46	01h		78	3Fh	fV max. 63 [Hz]	110	00h	<Example>
15	01h	"	47	01h	#5:None	79	1Ch	fH min. 28 [kHz]	111	FFh	
16	*1	<Week>	48	01h		80	41h	fH max. 65 [kHz]	112	00h	
17	*2	<Year>	49	01h	#6:None	81	0Bh	Max. p_clk 110 [MHz]	113	*3	
18	01h	<EDID S_Version>	50	01h		82	00h		114	*3	
19	03h	<EDID Revision>	51	01h	#7:None	83	0Ah		115	*3	
20	80h	<Video Input siganl>	52	01h		84	20h		116	*3	
21	22h	<Max.H. Image Size>	53	01h	#8:None	85	20h		117	*3	
22	1Bh	<Max.V. Image Size>	54	30h	D Timing #1	86	20h		118	*3	
23	78h	<Gamma>	55	2Ah	<Signal Timing>	87	20h		119	*3	
24	EAh	<DPMS etc.>	56	00h	(VESA1280x1024@60)	88	20h		120	0Ah	(EOL)
25	*5	<Color>	57	98h		89	20h		121	20h	
26	*5		58	51h		90	00h	D Timing #3	122	20h	
27	*5	(RED)X	59	00h		91	00h	<Model Name 1>	123	20h	
28	*5	(RED)Y	60	2Ah		92	00h	SDM-S76D_F	124	20h	
29	*5	(Green)X	61	40h		93	FCh		125	20h	
30	*5	(Green)Y	62	30h		94	00h		126	00h	
31	*5	(Blue)X	63	70h		95	53h	S	127	*4	<Check Sum>

*5 Color Data of panel (This is not final data)

CPT panel(CLAA170EA07Q)			CMO panel(M170E5-L09)		
25	E0h	<Color>	25	0Ch	<Color>
26	E5h		26	75h	
27	A4h	(RED)X=0.644	27	A5h	(RED)X=0.645
28	56h	(RED)Y=0.338	28	59h	(RED)Y=0.348
29	45h	(Green)X=0.270	29	47h	(Green)X=0.280
30	9Ah	(Green)Y=0.602	30	9Bh	(Green)Y=0.605
31	23h	(Blue)X=0.140	31	24h	(Blue)X=0.142
32	15h	(Blue)Y=0.084	32	11h	(Blue)Y=0.069
33	50h	(White)X=0.313	33	50h	(White)X=0.313
34	54h	(White)Y=0.329	34	54h	(White)Y=0.329

EDID DATA for S96F

EDID data for SDM-S96F (Analog)

No.	Data		No.	Data		No.	Data		No.	Data	
0	00h	<Header>	32	*5	(Blue)Y	64	13h		96	44h	D
1	FFh		33	*5	(White)X	65	00h		97	4Dh	M
2	FFh		34	*5	(White)Y	66	78h		98	2Dh	-
3	FFh		35	ADh	<Established Timings>	67	2Dh		99	53h	S
4	FFh		36	CFh		68	11h		100	39h	9
5	FFh		37	00h		69	00h		101	36h	6
6	FFh		38	81h	<Standard Timings>	70	00h		102	44h	D
7	00h		39	80h	#1:1280*1024/60Hz	71	1Eh		103	5Fh	_
8	4Dh	< Manufacturer name >	40	81h		72	00h	D Timing #2	104	46h	F
9	D9h	SNY	41	40h	#2:1280*960/60Hz	73	00h	<Range>	105	0Ah	(EOL)
10	00h	< Product code >	42	01h		74	00h		106	20h	
11	CBh	(00CB) --> CB00	43	01h	#3:None	75	FDh		107	20h	
12	01h	(Un-used : Serial)	44	01h		76	00h		108	00h	D Timing #4
13	01h	"	45	01h	#4:None	77	38H	fV min. 56 [Hz]	109	00h	<Serial Number>
14	01h	"	46	01h		78	4Bh	fV max. 75 [Hz]	110	00h	<Example>
15	01h	"	47	01h	#5:None	79	1Ch	fH min. 28 [kHz]	111	FFh	
16	*1	<Week>	48	01h		80	51h	fH max. 81 [kHz]	112	00h	
17	*2	<Year>	49	01h	#6:None	81	0Eh	Max. p_clk 140 [MHz]	113	*3	
18	01h	<EDID S_Version>	50	01h		82	00h		114	*3	
19	03h	<EDID Revision>	51	01h	#7:None	83	0Ah		115	*3	
20	0Eh	<Video Input siganl>	52	01h		84	20h		116	*3	
21	26h	<Max.H. Image Size> 376mm	53	01h	#8:None	85	20h		117	*3	
22	1Eh	<Max.V. Image Size> 301mm	54	30h	D Timing #1	86	20h		118	*3	
23	78h	<Gamma>	55	2Ah	<Signal Timing>	87	20h		119	*3	
24	EAh	<DPMS etc>	56	00h	(VESA1280x1024@60)	88	20h		120	0Ah	(EOL)
25	*5	<Color>	57	98h		89	20h		121	20h	
26	*5		58	51h		90	00h	D Timing #3	122	20h	
27	*5	(RED)X	59	00h		91	00h	<Model Name 1>	123	20h	
28	*5	(RED)Y	60	2Ah		92	00h	SDM-S96D_F	124	20h	
29	*5	(Green)X	61	40h		93	FCh		125	20h	
30	*5	(Green)Y	62	30h		94	00h		126	00h	
31	*5	(Blue)X	63	70h		95	53h	S	127	*4	<Check Sum>

EDID data for SDM-S96F (Digital)

No.	Data		No.	Data		No.	Data		No.	Data	
0	00h	<Header>	32	*5	(Blue)Y	64	13h		96	44h	D
1	FFh		33	*5	(White)X	65	00h		97	4Dh	M
2	FFh		34	*5	(White)Y	66	78h		98	2Dh	-
3	FFh		35	A1h	<Established Timings>	67	2Dh		99	53h	S
4	FFh		36	08h		68	11h		100	39h	9
5	FFh		37	00h		69	00h		101	36h	6
6	FFh		38	81h	<Standard Timings>	70	00h		102	44h	D
7	00h		39	80h	#1:1280*1024/60Hz	71	1Eh		103	5Fh	_
8	4Dh	< Manufacturer name >	40	81h		72	00h	D Timing #2	104	46h	F
9	D9h	SNY	41	40h	#2:1280*960/60Hz	73	00h	<Range>	105	0Ah	(EOL)
10	00h	< Product code >	42	01h		74	00h		106	20h	
11	CCh	(00CC) --> CC00	43	01h	#3:None	75	FDh		107	20h	
12	01h	(Un-used : Serial)	44	01h		76	00h		108	00h	D Timing #4
13	01h	"	45	01h	#4:None	77	39h	fV min. 57 [Hz]	109	00h	<Serial Number>
14	01h	"	46	01h		78	3Fh	fV max. 63 [Hz]	110	00h	<Example>
15	01h	"	47	01h	#5:None	79	1Ch	fH min. 28 [kHz]	111	FFh	
16	*1	<Week>	48	01h		80	41h	fH max. 65 [kHz]	112	00h	
17	*2	<Year>	49	01h	#6:None	81	0Bh	Max. p_clk 110 [MHz]	113	*3	
18	01h	<EDID S Version>	50	01h		82	00h		114	*3	
19	03h	<EDID Revision>	51	01h	#7:None	83	0Ah		115	*3	
20	80h	<Video Input siganl>	52	01h		84	20h		116	*3	
21	26h	<Max.H. Image Size>	53	01h	#8:None	85	20h		117	*3	
22	1Eh	<Max.V. Image Size>	54	30h	D Timing #1	86	20h		118	*3	
23	78h	<Gamma>	55	2Ah	<Signal Timing>	87	20h		119	*3	
24	EAh	<DPMS etc.>	56	00h	(VESA1280x1024@60)	88	20h		120	0Ah	(EOL)
25	*5	<Color>	57	98h		89	20h		121	20h	
26	*5		58	51h		90	00h	D Timing #3	122	20h	
27	*5	(RED)X	59	00h		91	00h	<Model Name 1>	123	20h	
28	*5	(RED)Y	60	2Ah		92	00h	SDM-E96D	124	20h	
29	*5	(Green)X	61	40h		93	FCh		125	20h	
30	*5	(Green)Y	62	30h		94	00h		126	00h	
31	*5	(Blue)X	63	70h		95	53h	S	127	*4	<Check Sum>

* 1 Input Data according to production week.
* 2 Input Data according to production year.
  Year code = A.D.-1990
  Ex.) A.D.2005-> 0Fh
* 3 Change decimal-seven-digit serial number to the ACII code and input it by unit.
  Ex.) 5000001-> 35,30,30,30,30,30,31
  113 -> 35h 117 -> 30h
  114 -> 30h 118 -> 30h
  115 -> 30h 119 -> 31h
  116 -> 30h
* 4 Input the data as the value of the lower 8 bits of the sum up all registers from # 0 to # 126 is equal to "00h".
  ex) The sum of data from # 0 to # 126 is "1C2Bh".
  In this case, the check sum is "D5h",2Bh + D5h = 100h

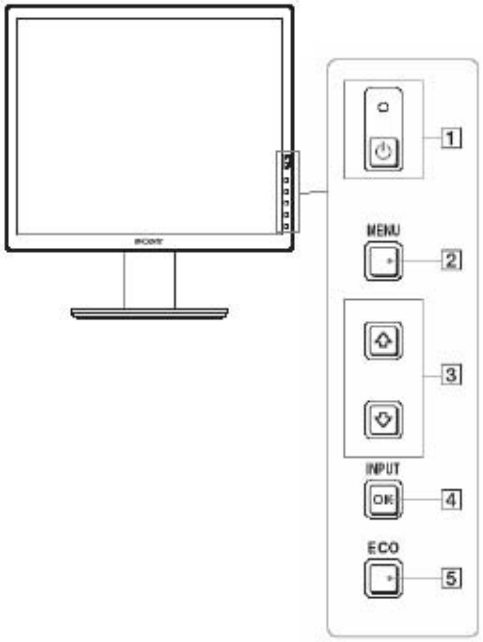
* 5 Color Data of panel (This is not final data)

AUO panel(M190EN04 V5)		
25	68h	<Color>
26	75h	
27	A2h	(RED)X=0.634
28	5Ah	(RED)Y=0.354
29	49h	(Green)X=0.287
30	9Fh	(Green)Y=0.621
31	23h	(Blue)X=0.138
32	13h	(Blue)Y=0.077
33	50h	(White)X=0.313
34	54h	(White)Y=0.329

OPERATING INSTRUCTIONS

<Key Control>

Front of the display



1 ⏻ **Power Switch and Indicator:**

To turn the display On or Off, press the Power Switch. The power indicator lights up in green when the display Is turned on, and lights up in orange when the monitor Is in power saving mode.

2 **Menu Button:**

This button displays or close the main menu.

3 **⬇/⬆ Button:**

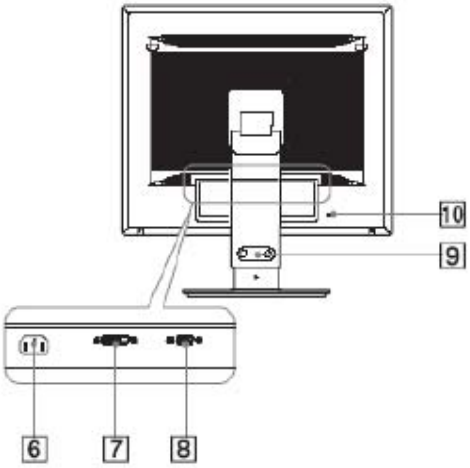
These buttons are used to select the menu items make adjustments.

4 **OK Button:**

This button selects the item or executes the settings in the menu.

Input button : this button switches the video input signal between INPUT 1 and INPUT 2 when two computers are connected to the display.

Rear of the display



6 **AC IN connector:** connect the power cord.

7 **DVI-D input connector**

theconnector inputs digital RGB video signals that comply with DVI Rev.1.0.

8 **HD15 input connector:**

this connector inputs analog RGB video signals (0.7 Vp-p, positive) and SYNC signals.

9 **Cable holder**

this part secures cables and cords to the display.

10 **Security lock hole:**

the security lock hole should be applied with the Kensington Micro Save Security System.

Micro Save Security System is a trademark of Kensington.

SERVICE MODE

To enter service OSD menu,
1) Turn off the power switch button.
2) Press “Down” key, and power key simultaneity.
3) Shows the service OSD menu. That menu is located in down side of main menu.
4) The service OSD menu contains additional menus as described below.

Service Mode Explanations

「COLOR TEMP」
Adjust R/G/B color values of contrast and brightness in 9300k, 6500k, Use color mode.
(Factory Setting Area).

「INITIAL EEPROM」
Initialize the EDID DATA at DDC2B EEPROM is saved system memory.
COLOR TEMP data becomes the default “128”. User table data is reset.

「CLR. ETI」
ETI (the used time of MNT) counter shall be reset to 0H by activating this function.

「AGING」
Enable to set the monitor in the Aging mode or exit from the mode. Select aging mode (On/Off)

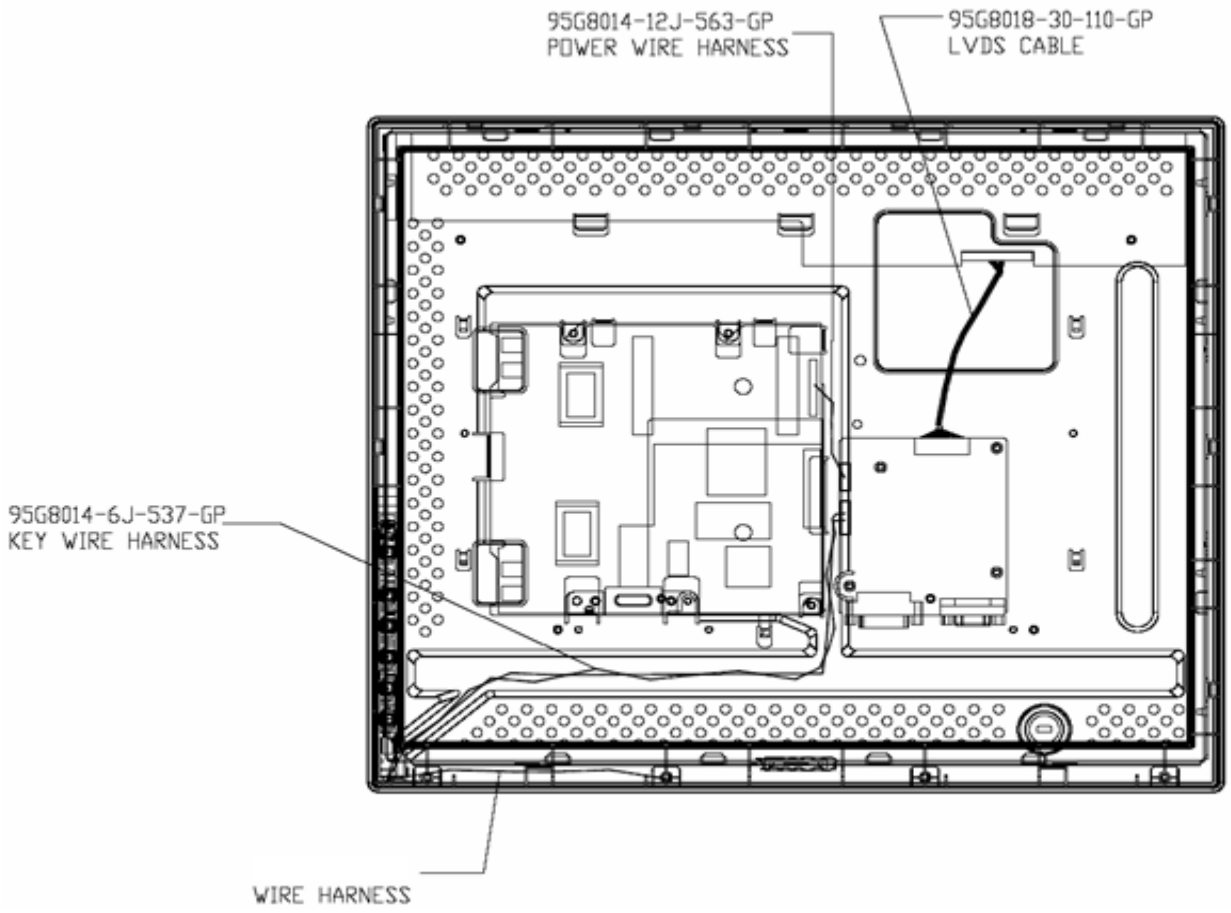
「WHITE BALANCE」
Adjust the offset voltage and gain value in Analog RGB by AUTO.

「DEFAULT TIMING」
Select the resolution timing of the signal. Menu is 1152×864(VESA standard timing) or
1152×870(MAC computer timing). Default is 1152×870.

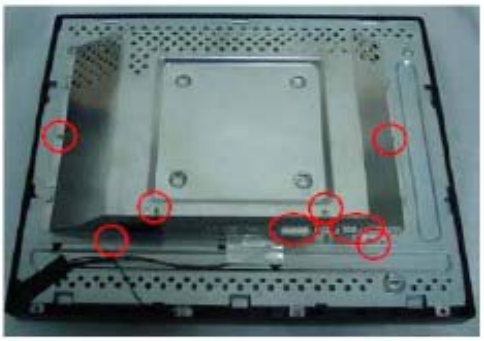
「MODULE」
To select applied module
When you replace A board or Panel, it is required to set the Panel inch size and the Panel maker name on selecting “MODULE”.

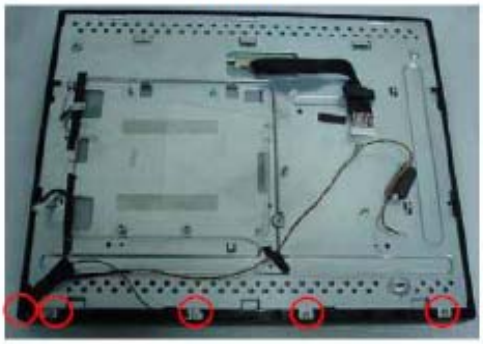
WIRING DIAGRAM

S76F/S96F



DISASSEMBLY PROCESS

Step	Figure	Description
Remove the screw on the Back Cabinet and Stand		Put the monitor on a clear soft cloth with panel facing to the table, and then, remove the 8 screws. (4 screws x Cabinet, 4 screws x Stand) ** Regarding 2 screws in the upper side of Back Cabinet, should remove the Cover Screw first.
Remove the Back Cabinet		Pay attention to the hooks marked by arrowheads, and then open the Back Cabinet with Jig (like a thin card) and it separated.
Remove the shield		Remove the 10 screws (including DVI & D-Sub screws), then remove the shield.
Take apart the Main board and Power board		<Main Board> Remove the 4 screws in the Main board and disconnect the 3 interfaces. <Power Board> Remove the 5 screws in the Power board and disconnect the 4 interfaces.

Step	Figure	Description
Remove the Bezel assy		Remove the 4 screws on the main frame, and disconnect the interface from Control Key.
		Pay attention to the hooks, open them as the arrowheads point. And then, remove the Bezel Assy.
Take apart the LVDS cable and Main frame		Disconnect the LVDS cable. Remove the 4 screws on the side of Main frame, and then, remove the main frame from Panel.
The panel		Only Panel.

ADJUSTMENT

1. Procedures of how to go to service mode.

1) Enter the service mode of this unit by turning on the power while pressing “down” key and the "power" key simultaneously.
2) Press "MENU" key----MAINTAIN.
3) Press the “Down” or “Up” key to select the icon “S” and press "OK" key to enter into the service menu.
4) Select the desired function.
5) Press the "MENU" key to exit OSD.
6) Turn off the power and then turn on it again. The monitor then enters the normal mode.
   To enter the service again, repeat the procedure described above.

Note

W/B readjustment is required after the panel, board and microcomputer are replaced. However, be sure to perform aging for more than 30 minutes for RGB reset before W/B adjustment.

2. Setup

1) Prepare timing and pattern data for a signal generator according to the Sony timing specifications.
2) Connect a monitor video cable to the signal generator.
3) Put Color Analyzer (ex. CA-210) 50cm away from the monitor, specify it vertically in the center of the display, and adjust the focus to the optimum level using an eyepiece.
4) Put the monitor and Color Analyzer (ex. CA-210) in a light-shielded room.
5) Set up [SERVICE MODE] of the monitor.

3. Operation

Data is manually set to improve the productivity. The brightness, contrast, and backlight are set to 50, 90 and 100 respectively. After that, the default data of the color temperature to be adjusted is set.

4. Warm up time

Warm up for 30 minutes before performing any adjustment.

5. Adjustment for White Balance

a. Display five white block and black pattern VGA/ 60Hz (Input level 0.73V).
b. Set up [SERVICE MODE].
c. Click “INITIAL EEPROM” and again setup Service Mode.
d. Click "WHITE BALANCE" and then select “AUTO”.
e. Prepare timing and full white pattern.

6. 9300K color adjustment

a. Select "9300K" in "COLOR TEMP" and enter.
b. Use a 100% (255Gray) IRE white video field in the primary (SXGA) mode.
c. Adjust "SUB CONTRAST" to secure the color temperature
d. Press "MENU" key to exit adjust mode.

7. 6500K color adjustment

a. Select "6500K" in "COLOR TEMP" and enter.
b. Repeat the adjustment procedure as steps b to d at 9300K.

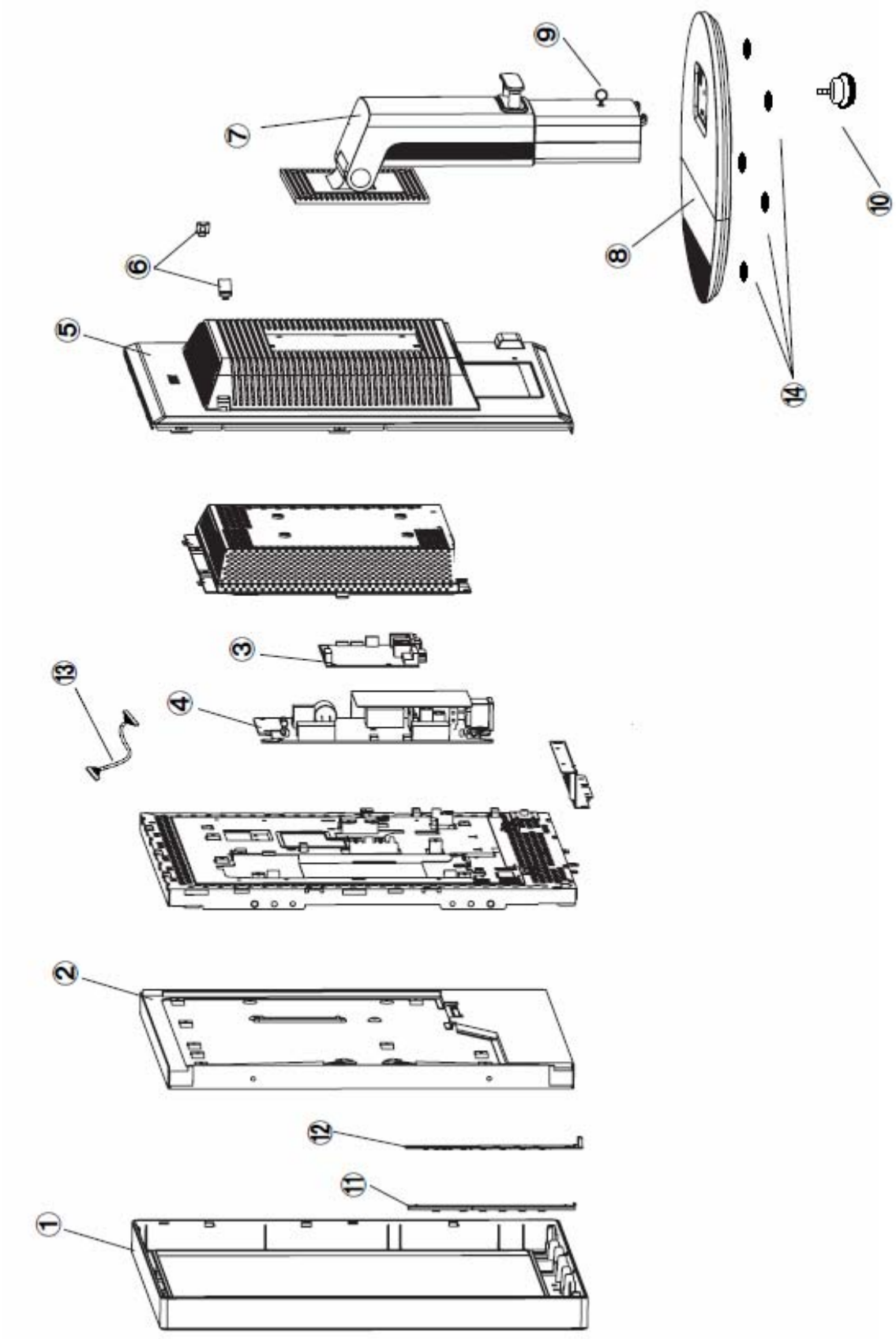
8. SRGB color adjustment

a. Select "SRGB" in "COLOR TEMP" and enter.
b. Adjust “SUB CONTRAST” value to the value of 6500K RGB.

<<Specification of WB adjustment>>

Panel	Mode	100IRE		
		x (+/−15)	y (+/−15)	Y (+40/−30)
Hannstar	9300K	280	292	190
	6500K	308	326	210
	sRGB	308	326	180
AUO	9300K	277	291	190
	6500K	306	324	210
	sRGB	306	324	180
CPT	9300K	279	298	190
	6500K	312	317	210
	sRGB	312	317	180
CMO	9300K	280	286	190
	6500K	309	323	210
	sRGB	309	323	180

EXPLODED VIEW



SERIAL NUMBER LIST

Model name	Colour	Destination	Serial Range	Panel	Factory
SDM-S76F	BLACK	AEP	1,600,001-1,700,000	CPT	TPV
			1,700,001-1,800,000	CMO	
SDM-S96F			1,500,001-1,600,000	AUO	
			1,900,001-2,000,000	Hannstar	

REPLACEMENT PARTS LIST

SDM-S76F

Ref. No.	SONY Part No.	SONY name
1	X21491601	BEZEL ASSY (Bezel + LED Lens + Sony Emblem)
2	180216611	DISPLAY PANEL, LIQUID CRYSTAL (CPT)
	180216711	DISPLAY PANEL, LIQUID CRYSTAL (CMO)
3	178964511	MOUNTED PWB A (for CPT)
	178964521	MOUNTED PWB A (for CMO)
4	178959211	MOUNTED PWB G (for CPT)
	178958811	MOUNTED PWB G (for CMO)
5	269878001	CABINET, REAR
6	265367011	COVER, SCREW
7	X21491641	HINGE,ASSY
8	X21491651	STAND BASE, ASSY
9	263308301	PIN, STOPPER
10	265366801	SCREW, THUMB
11	265373831	BUTTON, MULTI
12	178963511	MOUNTED PWB H
13	191002683	CONNECTOR ASSY
14	269880501	FOOT **(1piece)**
15	269348001	SCREW, HEXAGON **(1piece)**
16	263391501	LABEL, STAND
17	263677401	LABEL, SCREW
ACCESSORIES & PACKING MATERIALS		
18	182984911	POWER SUPPLY CORD (AEP)
19	182985511	DVI CABLE CONNECTION
20	182987611	CABLE, D-SUB
21	268595606	CD-ROM
22	269554112	QUICK SETUP GUIDE (AEP)

※Please refer to the following URL of EMCS-INZ CS web page to see the latest service parts list.
http://www.tvdg.sony.co.jp/cs/sdm-pn/index.html

SDM-S96F

Ref. No.	SONY Part No.	SONY name
1	X21491611	BEZEL ASSY (Bezel + LED Lens + Sony Emblem)
2	180216411	DISPLAY PANEL, LIQUID CRYSTAL(Hannstar)
	180216511	DISPLAY PANEL, LIQUID CRYSTAL (AUO)
3	178964531	MOUNTED PWB A (for Hannstar)
	178964541	MOUNTED PWB A (for AUO)
4	178958911	MOUNTED PWB G (for Hannstar)
	178959311	MOUNTED PWB G (for AUO)
5	269882301	CABINET,REAR
6	265367011	COVER, SCREW
7	X21491691	HINGE ASSY
8	X21491681	STAND BASE ASSY
9	263308301	PIN, STOPPER
10	265366801	SCREW, THUMB
11	265533331	BUTTON, MULTI
12	178963511	MOUNTED PWB H
13	191002852	CONNECTOR ASSY
14	269880501	FOOT **(1piece)**
15	269348001	SCREW, HEXAGON **(1piece)**
16	263391501	LABEL, STAND
17	263677401	LABEL, SCREW
ACCESSORIES & PACKING MATERIALS		
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